Additions Mix 1

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 07/25/2019 Revision date: 12/12/2019 Supersedes: 07/25/2019 Version: 1.1

SECTION 1: Identification

1.1. Identification

Product form : Mixture

Product name : Additions Mix 1

Product code : AL0-180005; AL0-180025

1.2. Recommended use and restrictions on use

No additional information available

1.3. Supplier

Phenova
6390 Joyce Dr. Suite 100
Golden, CO 80403 - United States
T 1-866-942-2978 - F 1-866-283-0269
info@phenova.com - www.phenova.com

1.4. Emergency telephone number

Emergency number : ChemTel Assistance (US/Canada) 1-800-255-3924
ChemTel Assistance (International) +1 813-248-0585

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Flammable liquids Category 2	H225	Highly flammable liquid and vapour
Acute toxicity (oral) Category 3	H301	Toxic if swallowed
Acute toxicity (dermal) Category 3	H311	Toxic in contact with skin
Serious eye damage/eye irritation Category 2	H319	Causes serious eye irritation
Carcinogenicity Category 1B	H350	May cause cancer
Specific target organ toxicity (single exposure) Category 1	H370	Causes damage to organs

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Hazard pictograms (GHS US) :

Signal word (GHS US) : Danger

Hazard statements (GHS US) : H225 - Highly flammable liquid and vapour
H301+H311 - Toxic if swallowed or in contact with skin
H319 - Causes serious eye irritation
H350 - May cause cancer
H370 - Causes damage to organs

Precautionary statements (GHS US) : P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 - Keep container tightly closed.
P260 - Do not breathe dust/fume/gas/mist/vapors/spray.
P264 - Wash hands, forearms and face thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P301+P310 - If swallowed: Immediately call a poison center or doctor
P302+P352 - If on skin: Wash with plenty of water
P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower

P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P308+P313 - If exposed or concerned: Get medical advice/attention.
P337+P313 - If eye irritation persists: Get medical advice/attention.
P361+P364 - Take off immediately all contaminated clothing and wash it before reuse.
P370+P378 - In case of fire: Use media other than water to extinguish.
P403+P235 - Store in a well-ventilated place. Keep cool.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	Conc.
methanol (Component)	(CAS-No.) 67-56-1	92.4
1-propanol (Component)	(CAS-No.) 71-23-8	1
1-butanol (Component)	(CAS-No.) 71-36-3	1
Isopropanol (Component)	(CAS-No.) 67-63-0	1
benzyl chloride, inhibited (Component)	(CAS-No.) 100-44-7	0.2
hexachloroethane (Component)	(CAS-No.) 67-72-1	0.2
nitrobenzene (Component)	(CAS-No.) 98-95-3	0.2

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. IF exposed or concerned: Get medical advice/attention.

First-aid measures after inhalation : Allow affected person to breathe fresh air. Allow the victim to rest.

First-aid measures after skin contact : Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.

First-aid measures after eye contact : Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persists.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

4.2. Most important symptoms and effects (acute and delayed)

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met.

Symptoms/effects : Not expected to present a significant hazard under anticipated conditions of normal use.

4.3. Immediate medical attention and special treatment, if necessary

No additional information available

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.

Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Specific hazards arising from the chemical

No additional information available

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection.

Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Take up in absorbent material. Collect spillage.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor.

Hygiene measures : Gently wash with plenty of soap and water. Remove/Take off immediately all contaminated clothing. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep container closed when not in use. Keep container tightly closed and in a well-ventilated place. Keep away from any flames or sparking source.

Incompatible materials : Direct sunlight.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Additions Mix 1		
ACGIH	Local name	Methanol
ACGIH	ACGIH TWA (ppm)	200 ppm
ACGIH	ACGIH STEL (ppm)	250 ppm
ACGIH	Remark (ACGIH)	Headache; eye dam; dizziness; nausea
ACGIH	Regulatory reference	ACGIH 2018
OSHA	OSHA PEL (TWA) (mg/m³)	260 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	200 ppm
OSHA	Regulatory reference (US-OSHA)	OSHA

1-propanol (71-23-8)		
ACGIH	Local name	n-Propanol (n-Propyl alcohol)
ACGIH	ACGIH TWA (ppm)	100 ppm
ACGIH	Remark (ACGIH)	Eye & URT irr
ACGIH	Regulatory reference	ACGIH 2018
OSHA	OSHA PEL (TWA) (mg/m³)	500 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	200 ppm
OSHA	Regulatory reference (US-OSHA)	OSHA

benzyl chloride, inhibited (100-44-7)		
ACGIH	Local name	Benzyl chloride
ACGIH	ACGIH TWA (ppm)	1 ppm
ACGIH	Remark (ACGIH)	Eye, skin, & URT irr
ACGIH	Regulatory reference	ACGIH 2018
OSHA	OSHA PEL (TWA) (mg/m³)	5 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	1 ppm
OSHA	Regulatory reference (US-OSHA)	OSHA

hexachloroethane (67-72-1)		
ACGIH	Local name	Hexachloroethane
ACGIH	ACGIH TWA (ppm)	1 ppm
ACGIH	Remark (ACGIH)	Liver & kidney dam
ACGIH	Regulatory reference	ACGIH 2018
OSHA	OSHA PEL (TWA) (mg/m³)	10 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	1 ppm
OSHA	Regulatory reference (US-OSHA)	OSHA

nitrobenzene (98-95-3)		
ACGIH	Local name	Nitrobenzene
ACGIH	ACGIH TWA (ppm)	1 ppm (Nitrobenzene; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value)
ACGIH	Remark (ACGIH)	MeHb-emia
ACGIH	Regulatory reference	ACGIH 2018
OSHA	OSHA PEL (TWA) (mg/m³)	5 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	1 ppm
OSHA	Regulatory reference (US-OSHA)	OSHA

1-butanol (71-36-3)		
ACGIH	Local name	n-Butanol
ACGIH	ACGIH TWA (ppm)	20 ppm
ACGIH	Remark (ACGIH)	Eye & URT irr
ACGIH	Regulatory reference	ACGIH 2018
OSHA	OSHA PEL (TWA) (mg/m³)	300 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	100 ppm
OSHA	Regulatory reference (US-OSHA)	OSHA

Isopropanol (67-63-0)		
ACGIH	Local name	2-Propanol
ACGIH	ACGIH TWA (ppm)	200 ppm
ACGIH	ACGIH STEL (ppm)	400 ppm
ACGIH	Remark (ACGIH)	Eye & URT irr; CNS impair
ACGIH	Regulatory reference	ACGIH 2018
OSHA	OSHA PEL (TWA) (mg/m³)	980 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	400 ppm
OSHA	Regulatory reference (US-OSHA)	OSHA

methanol (67-56-1)		
ACGIH	Local name	Methanol

methanol (67-56-1)		
ACGIH	ACGIH TWA (ppm)	200 ppm (Methanol; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value)
ACGIH	ACGIH STEL (ppm)	250 ppm (Methanol; USA; Short time value; TLV - Adopted Value)
ACGIH	Remark (ACGIH)	Headache; eye dam; dizziness; nausea
ACGIH	Regulatory reference	ACGIH 2018
OSHA	OSHA PEL (TWA) (mg/m³)	260 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	200 ppm
OSHA	Regulatory reference (US-OSHA)	OSHA

8.2. Appropriate engineering controls

Appropriate engineering controls : Either local exhaust or general room ventilation is usually required.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Avoid all unnecessary exposure. Gloves. Protective clothing. Protective goggles. Safety glasses.

Hand protection:

Wear chemically resistant protective gloves. Wear suitable gloves resistant to chemical penetration

Eye protection:

Chemical goggles or safety glasses. Safety glasses

Skin and body protection:

Wear chemically protective gloves, lab coat or apron to prevent prolonged or repeated skin contact

Respiratory protection:

Wear appropriate mask

Personal protective equipment symbol(s):

Other information:

Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid
: Colorless
: characteristic
Odor threshold : No data available
pH : No data available
Melting point : No data available
Freezing point : No data available
Boiling point : No data available
Flash point : No data available
Relative evaporation rate (butyl acetate=1) : No data available
Flammability (solid, gas) : Non flammable.
Vapor pressure : No data available
Relative vapor density at 20 °C : No data available

Relative density	:	No data available
Solubility	:	No data available
Partition coefficient n-octanol/water (Log Pow)	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosion limits	:	No data available
Explosive properties	:	No data available
Oxidizing properties	:	No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Not established.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

No additional information available

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

Additions Mix 1	
ATE US (oral)	107.991 mg/kg body weight
ATE US (dermal)	324.109 mg/kg body weight

1-propanol (71-23-8)	
LD50 oral rat	> 2000 mg/kg (Rat, Oral)
LD50 dermal rabbit	4049 mg/kg (Rabbit, Dermal)
LC50 inhalation rat (mg/l)	9.8 mg/l (4 h, Rat, Inhalation)
ATE US (dermal)	4049 mg/kg body weight
ATE US (vapors)	9.8 mg/l/4h
ATE US (dust, mist)	9.8 mg/l/4h

benzyl chloride, inhibited (100-44-7)	
LD50 oral rat	560 mg/kg body weight (Equivalent or similar to OECD 401, Rat, Male / female, Experimental value, Oral, 14 day(s))
LC50 inhalation rat (mg/l)	1.79 mg/l air (4 h, Rat, Male / female, Inhalation (vapours), 14 day(s))
ATE US (oral)	560 mg/kg body weight
ATE US (gases)	700 ppmV/4h
ATE US (vapors)	3 mg/l/4h
ATE US (dust, mist)	0.5 mg/l/4h

hexachloroethane (67-72-1)	
LD50 oral rat	4460 mg/kg (Rat, Oral)
LD50 dermal rabbit	32000 mg/kg (Rabbit, Dermal)
ATE US (oral)	4460 mg/kg body weight

hexachloroethane (67-72-1)	
ATE US (dermal)	32000 mg/kg body weight

nitrobenzene (98-95-3)	
LD50 oral rat	640 mg/kg (Rat; Experimental value; 588 mg/kg bodyweight; Rat)
LD50 dermal rabbit	760 mg/kg body weight (Rabbit; Experimental value)
ATE US (oral)	100 mg/kg body weight
ATE US (dermal)	760 mg/kg body weight
ATE US (gases)	700 ppmV/4h
ATE US (vapors)	3 mg/l/4h
ATE US (dust, mist)	0.5 mg/l/4h

1-butanol (71-36-3)	
LD50 oral rat	2292 mg/kg body weight (Equivalent or similar to OECD 401, Rat, Female, Experimental value, Oral)
LD50 dermal rabbit	3430 mg/kg body weight (Equivalent or similar to OECD 402, 24 h, Rabbit, Male, Experimental value, Dermal)
ATE US (oral)	500 mg/kg body weight
ATE US (dermal)	3430 mg/kg body weight

Isopropanol (67-63-0)	
LD50 oral rat	5840 mg/kg body weight (Equivalent or similar to OECD 401, Rat, Experimental value, Oral, 14 day(s))
LD50 dermal rabbit	16400 ml/kg (Equivalent or similar to OECD 402, 24 h, Rabbit, Experimental value, Dermal, 14 day(s))
LC50 inhalation rat (ppm)	> 10000 ppm (Equivalent or similar to OECD 403, 6 h, Rat, Male / female, Experimental value, Inhalation (vapours), 14 day(s))
ATE US (oral)	5840 mg/kg body weight

methanol (67-56-1)	
LD50 oral rat	> 5000 mg/kg (Rat; BASF test; Literature study; 1187-2769 mg/kg bodyweight; Rat; Weight of evidence)
LD50 dermal rabbit	15800 mg/kg (Rabbit; Literature study)
LC50 inhalation rat (mg/l)	85 mg/l/4h (Rat; Literature study)
LC50 inhalation rat (ppm)	64000 ppm/4h (Rat; Literature study)
ATE US (oral)	100 mg/kg body weight
ATE US (dermal)	300 mg/kg body weight
ATE US (gases)	700 ppmV/4h
ATE US (vapors)	3 mg/l/4h
ATE US (dust, mist)	0.5 mg/l/4h

Skin corrosion/irritation : Not classified

Serious eye damage/irritation : Causes serious eye irritation.

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified

Based on available data, the classification criteria are not met

Carcinogenicity : May cause cancer.

benzyl chloride, inhibited (100-44-7)	
IARC group	2A - Probably carcinogenic to humans

hexachloroethane (67-72-1)	
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen

nitrobenzene (98-95-3)	
IARC group	2B - Possibly carcinogenic to humans
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen

Reproductive toxicity : Not classified

Based on available data, the classification criteria are not met

STOT-single exposure : Causes damage to organs.

STOT-repeated exposure	:	Not classified
Aspiration hazard	:	Not classified
Potential Adverse human health effects and symptoms	:	Based on available data, the classification criteria are not met.
Symptoms/effects	:	Not expected to present a significant hazard under anticipated conditions of normal use.

SECTION 12: Ecological information

12.1. Toxicity

1-propanol (71-23-8)	
LC50 fish 1	4480 mg/l (96 h, Pimephales promelas, Flow-through system)
EC50 Daphnia 1	3644 mg/l (48 h, Daphnia magna)
benzyl chloride, inhibited (100-44-7)	
LC50 fish 1	4 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Brachydanio rerio, Static system, Fresh water, Experimental value)
EC50 Daphnia 1	6.1 mg/l (EPA 660/3 - 75/009, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, GLP)
hexachloroethane (67-72-1)	
LC50 fish 1	0.84 mg/l (96 h, Salmo gairdneri)
EC50 Daphnia 1	1.4 mg/l (Daphnia magna)
nitrobenzene (98-95-3)	
LC50 fish 1	4.3 mg/l (LC50; OECD 203: Fish, Acute Toxicity Test; 48 h; Oryzias latipes)
EC50 Daphnia 1	35 mg/l (Other, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, Locomotor effect)
1-butanol (71-36-3)	
LC50 fish 1	1376 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Pimephales promelas, Static system, Fresh water, Experimental value, GLP)
EC50 Daphnia 1	1328 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, GLP)
Isopropanol (67-63-0)	
LC50 fish 1	9640 – 10000 mg/l (Equivalent or similar to OECD 203, 96 h, Pimephales promelas, Flow-through system, Fresh water, Experimental value, Lethal)
methanol (67-56-1)	
LC50 fish 1	15400 mg/l (LC50; EPA 660/3 - 75/009; 96 h; Lepomis macrochirus; Flow-through system; Fresh water; Experimental value)
EC50 Daphnia 1	> 10000 mg/l (EC50; DIN 38412-11; 48 h; Daphnia magna; Static system; Fresh water; Experimental value)
LC50 fish 2	10800 mg/l (LC50; 96 h; Salmo gairdneri)

12.2. Persistence and degradability

Additions Mix 1	
Persistence and degradability	Not established.
1-propanol (71-23-8)	
Persistence and degradability	Biodegradable in the soil. Biodegradable in the soil under anaerobic conditions. Readily biodegradable in water.
Biochemical oxygen demand (BOD)	0.47 – 1.63 g O_2/g substance
Chemical oxygen demand (COD)	2.23 g O_2/g substance
ThOD	2.4 g O_2/g substance
BOD (% of ThOD)	0.20 – 0.44
benzyl chloride, inhibited (100-44-7)	
Persistence and degradability	Readily biodegradable in water.
hexachloroethane (67-72-1)	
Persistence and degradability	Readily biodegradable in water.

nitrobenzene (98-95-3)	
Persistence and degradability	Not readily biodegradable in water. Biodegradable in the soil. Low potential for adsorption in soil.
Biochemical oxygen demand (BOD)	0 g O_2/g substance
ThOD	1.95 g O_2/g substance
BOD (% of ThOD)	0

1-butanol (71-36-3)	
Persistence and degradability	Readily biodegradable in water.
Biochemical oxygen demand (BOD)	1.1 – 1.92 g O_2/g substance
Chemical oxygen demand (COD)	2.46 g O_2/g substance
ThOD	2.59 g O_2/g substance
BOD (% of ThOD)	0.33 – 0.79

Isopropanol (67-63-0)	
Persistence and degradability	Biodegradable in the soil. Biodegradable in the soil under anaerobic conditions. Readily biodegradable in water.
Biochemical oxygen demand (BOD)	1.19 g O_2/g substance
Chemical oxygen demand (COD)	2.23 g O_2/g substance
ThOD	2.4 g O_2/g substance

methanol (67-56-1)	
Persistence and degradability	Readily biodegradable in water. Biodegradable in the soil. Highly mobile in soil.
Biochemical oxygen demand (BOD)	0.6 – 1.12 g O_2/g substance
Chemical oxygen demand (COD)	1.42 g O_2/g substance
ThOD	1.5 g O_2/g substance
BOD (% of ThOD)	0.8 (Literature study)

12.3. Bioaccumulative potential

Additions Mix 1	
Bioaccumulative potential	Not established.

1-propanol (71-23-8)	
Partition coefficient n-octanol/water (Log Pow)	0.25 (Experimental value)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

benzyl chloride, inhibited (100-44-7)	
BCF other aquatic organisms 1	5.7 ppm (24 h, Lamellibranchiata, Fresh weight)
BCF other aquatic organisms 2	3.1 – 4.2 ppm (24 h, Lamellibranchiata, Viscera)
Partition coefficient n-octanol/water (Log Pow)	2.3 (QSAR, 20 °C)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

hexachloroethane (67-72-1)	
BCF fish 1	1200 (Salmo gairdneri)
BCF fish 2	756 mg/l (768 h, Pimephales promelas)
Partition coefficient n-octanol/water (Log Pow)	3.34 – 4.62
Bioaccumulative potential	Potential for bioaccumulation (500 ≤ BCF ≤ 5000).

nitrobenzene (98-95-3)	
BCF fish 1	15 (BCF; 672 h)
BCF fish 2	1.6 – 7.7 (BCF; OECD 305: Bioconcentration: Flow-Through Fish Test; 42 days; Cyprinus carpio; Flow-through system; Fresh water; Experimental value)
BCF other aquatic organisms 1	24 (BCF)
Partition coefficient n-octanol/water (Log Pow)	1.85 (Calculated; 1.86; Experimental value; EU Method A.8: Partition Coefficient)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

1-butanol (71-36-3)	
BCF other aquatic organisms 1	3.16 (BCFWIN, Calculated value)

1-butanol (71-36-3)	
Partition coefficient n-octanol/water (Log Pow)	1 (Experimental value, OECD 117: Partition Coefficient (n-octanol/water), HPLC method, 25 °C)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

Isopropanol (67-63-0)	
Partition coefficient n-octanol/water (Log Pow)	0.05 (Weight of evidence approach, 25 °C)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

methanol (67-56-1)	
BCF fish 1	< 10 (BCF; 72 h; Leuciscus idus)
Partition coefficient n-octanol/water (Log Pow)	-0.77 (Experimental value; Other)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

12.4. Mobility in soil

1-propanol (71-23-8)	
Surface tension	0.024 N/m (20 °C)

benzyl chloride, inhibited (100-44-7)	
Surface tension	37.8 mN/m (20 °C)

nitrobenzene (98-95-3)	
Surface tension	0.0439 N/m
Partition coefficient n-octanol/water (Log Koc)	Koc,Other; 118; Calculated value; log Koc; Other; 2.07; Calculated value
Ecology - soil	Low potential for adsorption in soil.

1-butanol (71-36-3)	
Surface tension	0.07 N/m (20 °C, 1 g/l, OECD 115: Surface Tension of Aqueous Solutions)
Partition coefficient n-octanol/water (Log Koc)	0.388 (log Koc, PCKOCWIN v1.66, Calculated value)
Ecology - soil	Highly mobile in soil. May be harmful to plant growth, blooming and fruit formation.

Isopropanol (67-63-0)	
Surface tension	0.021 N/m (25 °C)
Partition coefficient n-octanol/water (Log Koc)	0.185 – 0.541 (log Koc, SRC PCKOCWIN v2.0, Calculated value)
Ecology - soil	Highly mobile in soil.

methanol (67-56-1)	
Surface tension	0.023 N/m (20 °C)
Partition coefficient n-octanol/water (Log Koc)	Koc,PCKOCWIN v1.66; 1; Calculated value

12.5. Other adverse effects

Additions Mix 1	

1-propanol (71-23-8)	

benzyl chloride, inhibited (100-44-7)	

hexachloroethane (67-72-1)	

nitrobenzene (98-95-3)	

1-butanol (71-36-3)	

Isopropanol (67-63-0)	

methanol (67-56-1)	

Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Disposal methods

Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Transport document description : UN1992 Flammable liquids, toxic, n.o.s. (methanol ; benzyl chloride, inhibited ; hexachloroethane ; nitrobenzene), 3 (6.1), II

UN-No.(DOT) : UN1992

Proper Shipping Name (DOT) : Flammable liquids, toxic, n.o.s.
methanol ; benzyl chloride, inhibited ; hexachloroethane ; nitrobenzene

Class (DOT) : 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120

Packing group (DOT) : II - Medium Danger

Subsidiary risk (DOT) : 6.1 - Class 6.1 - Poisonous materials 49 CFR 173.132

Hazard labels (DOT) : 3 - Flammable liquid
6.1 - Poison

DOT Packaging Non Bulk (49 CFR 173.xxx) : 202

DOT Packaging Bulk (49 CFR 173.xxx) : 243

DOT Symbols : G - Identifies PSN requiring a technical name

DOT Special Provisions (49 CFR 172.102) : IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized.
T7 - 4 178.274(d)(2) Normal..... 178.275(d)(3)
TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively.
TP13 - Self-contained breathing apparatus must be provided when this hazardous material is transported by sea.

DOT Packaging Exceptions (49 CFR 173.xxx) : 150

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 1 L

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 60 L

DOT Vessel Stowage Location : B - (i) The material may be stowed ‘‘on deck’’ or ‘‘under deck’’ on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) ‘‘On deck only’’ on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.

DOT Vessel Stowage Other : 40 - Stow ‘‘clear of living quarters’’

Emergency Response Guide (ERG) Number : 131

Other information : No supplementary information available.

Transportation of Dangerous Goods

Not applicable

Transport by sea

Transport document description (IMDG)	:	UN 1992 FLAMMABLE LIQUID, TOXIC, N.O.S. (methanol ; benzyl chloride, inhibited ; hexachloroethane ; nitrobenzene), 3 (6.1), II
UN-No. (IMDG)	:	1992
Proper Shipping Name (IMDG)	:	FLAMMABLE LIQUID, TOXIC, N.O.S.
Class (IMDG)	:	3 - Flammable liquids
Packing group (IMDG)	:	II - substances presenting medium danger
Subsidiary risks (IMDG)	:	6.1 - Toxic substances

Air transport

Transport document description (IATA)	:	UN 1992 Flammable liquid, toxic, n.o.s. (methanol ; benzyl chloride, inhibited ; hexachloroethane ; nitrobenzene), 3 (6.1), II
UN-No. (IATA)	:	1992
Proper Shipping Name (IATA)	:	Flammable liquid, toxic, n.o.s.
Class (IATA)	:	3 - Flammable Liquids
Packing group (IATA)	:	II - Medium Danger
Subsidiary hazards (IATA)	:	6.1 - Toxic substances

SECTION 15: Regulatory information

15.1. US Federal regulations

1-propanol (71-23-8)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

benzyl chloride, inhibited (100-44-7)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
Listed on EPA Hazardous Air Pollutant (HAPS)	
CERCLA RQ	100 lb
RQ (Reportable quantity, section 304 of EPA's List of Lists)	100 lb
SARA Section 302 Threshold Planning Quantity (TPQ)	500 lb

hexachloroethane (67-72-1)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
Listed on EPA Hazardous Air Pollutant (HAPS)	
EPA TSCA Regulatory Flag	TP - TP - indicates a substance that is the subject of a proposed TSCA section 4 test rule.
CERCLA RQ	100 lb

nitrobenzene (98-95-3)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
Listed on EPA Hazardous Air Pollutant (HAPS)	
CERCLA RQ	1000 lb
RQ (Reportable quantity, section 304 of EPA's List of Lists)	1000 lb
SARA Section 302 Threshold Planning Quantity (TPQ)	10000 lb

1-butanol (71-36-3)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
CERCLA RQ	5000 lb

Isopropanol (67-63-0)
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313

methanol (67-56-1)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
Listed on EPA Hazardous Air Pollutant (HAPS)	
CERCLA RQ	5000 lb

15.2. International regulations

CANADA

1-propanol (71-23-8)
Listed on the Canadian DSL (Domestic Substances List)

benzyl chloride, inhibited (100-44-7)
Listed on the Canadian DSL (Domestic Substances List)

hexachloroethane (67-72-1)
Listed on the Canadian DSL (Domestic Substances List)

nitrobenzene (98-95-3)
Listed on the Canadian DSL (Domestic Substances List)

1-butanol (71-36-3)
Listed on the Canadian DSL (Domestic Substances List)

Isopropanol (67-63-0)
Listed on the Canadian DSL (Domestic Substances List)

methanol (67-56-1)
Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations
No additional information available

National regulations

benzyl chloride, inhibited (100-44-7)
Listed on IARC (International Agency for Research on Cancer) Listed on EPA Hazardous Air Pollutant (HAPS)

hexachloroethane (67-72-1)
Listed on IARC (International Agency for Research on Cancer) Listed as carcinogen on NTP (National Toxicology Program) Listed on EPA Hazardous Air Pollutant (HAPS)

nitrobenzene (98-95-3)
Listed on IARC (International Agency for Research on Cancer) Listed as carcinogen on NTP (National Toxicology Program) Listed on EPA Hazardous Air Pollutant (HAPS)

methanol (67-56-1)
Listed on EPA Hazardous Air Pollutant (HAPS)

15.3. US State regulations

benzyl chloride, inhibited (100-44-7)					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	No	No	No	4 µg/day	

hexachloroethane (67-72-1)					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	No	No	No	20 µg/day	

nitrobenzene (98-95-3)					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	No	No	Yes		

methanol (67-56-1)					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
No	Yes	No	No		47000 µg/day (inhalation); 23,000 µg/day (oral)

SECTION 16: Other information

Revision date : 12/12/2019

Data sources : REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labeling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

Other information : None.

Full text of H-phrases:

H225	Highly flammable liquid and vapour
H301	Toxic if swallowed
H311	Toxic in contact with skin
H319	Causes serious eye irritation
H350	May cause cancer
H370	Causes damage to organs

Phenova US SDS REV